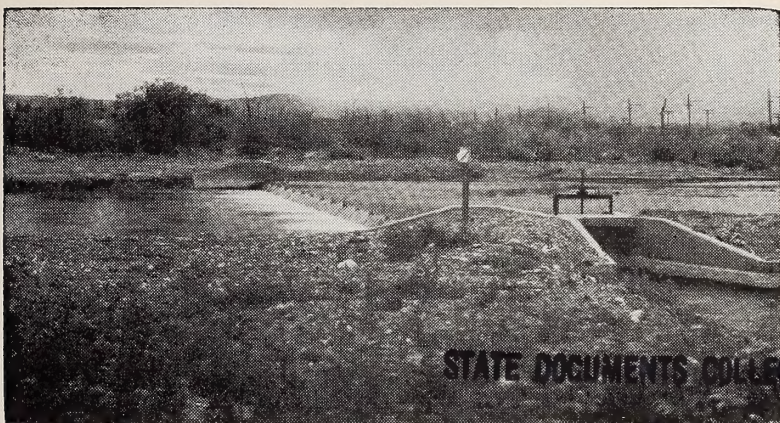
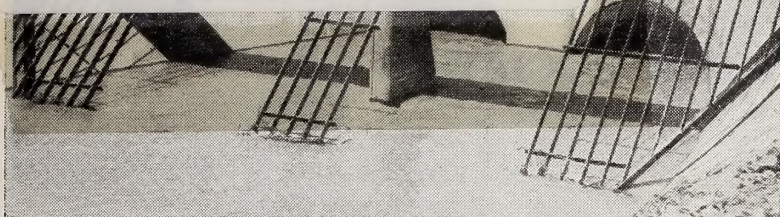


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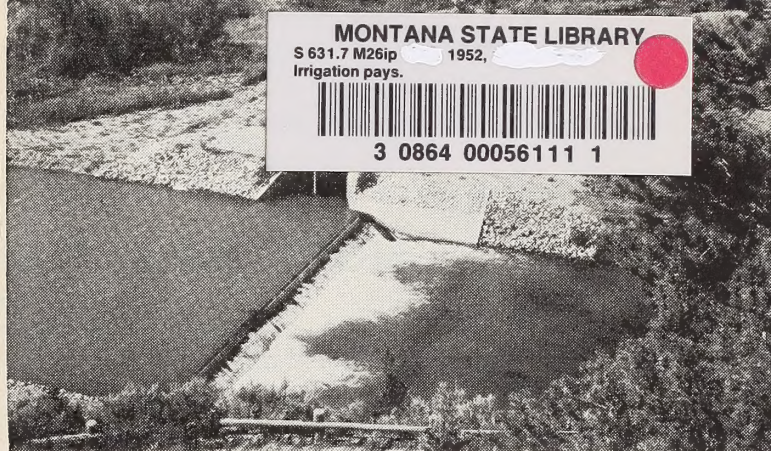
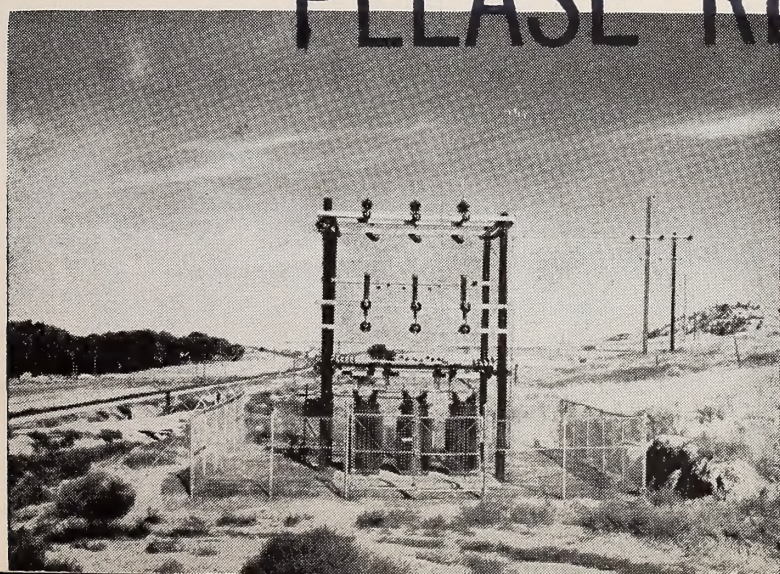
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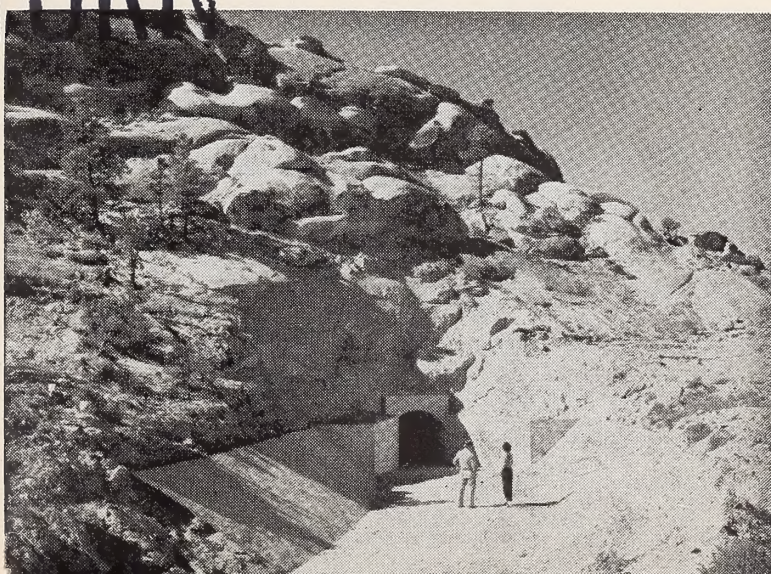
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# IRRIGATION PAYS

Projects Constructed by  
State Water Conservation Board

Published by  
MONTANA RECLAMATION  
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1952





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## MONTANA'S WATER CONSERVATION PROGRAM

In the 1930's depression and drought hit Montana at the same time. We were not prepared for either. Hosts of Montana citizens were compelled to sacrifice their lands, their livestock and even their household effects and migrate to other areas in the hope of making a fresh start. We had failed as a state to conserve the precious water that ran to waste in our streams. Widespread unemployment resulted and the application of available labor to build projects of a regenerative nature was needed to rehabilitate our state and its people. This challenge was accepted by our citizens and led by the "Irrigation Committee of Montanans, Incorporated," which committee later resolved itself into the present Montana Reclamation Association, a construction agency, the State Water Conservation Board was created with power to carry on such a program.

The statute providing for the State Water Conservation Board was enacted at a special session of the Legislature in January, 1934, and Montana's construction program to conserve water commenced immediately.

Annually, each successive Legislature has provided funds to carry on this program.

In that many of the earlier projects constructed by this Board were incorporated in the federal government's effort to employ people, federal agencies cooperated in their construction through grants of money, labor and material, and through the purchase of "water conservation revenue bonds" issued by the Board.

Many smaller projects built by the Board are not described in this pamphlet because space does not permit. Neither does this pamphlet contain any information as to the many other activities of the Board, such as the surveys and investigations of hundreds of potential irrigation projects, nor the shelf of projects which the Board has ready for early construction, nor does it contain information as to the Board's cooperation with federal agencies in the development of the state.

In this pamphlet we have confined ourselves to reporting on the larger projects which have been constructed through our state program. We point with pride to this state program; its direct and indirect benefits are making themselves felt throughout the state. We must continue our efforts toward conserving our water so as to minimize any such disaster as that which overtook us in the 1930's. We must be prepared and ready to **meet any such emergency**. The past performance of construction demonstrates what can be done in developing our great state through the activities of the State Water Conservation Board.

The Montana Reclamation Association is composed of a representative group of individuals from all sections of Montana who are interested in the welfare and improvement of the state through the reclamation and irrigation of its lands. The Association supports reclamation and irrigation on both a national and state-wide basis.

We submit the information contained in this booklet as an accounting of what Montana has accomplished in its water conservation program. Based on these accomplishments we urge the continuance of this program, with proper financial provision being made for it by future legislatures.



# RECORD OF ACCOMPLISHMENTS

The State Water Conservation Board's principal program has been the construction of irrigation projects; however, it has also furnished engineering for the construction of 10,108 miles of rural electrification lines to serve 12,774 customers and has engineered and supervised the building of structures and other work for many districts and private irrigation companies in the state.

The water conservation projects constructed or rehabilitated by this state agency total 173 of which 44 are major projects, and 129 are small projects most of which were built in conjunction with Works Progress Administration and which are located principally in southeastern Montana counties.

The Board's projects store 410,705 acre feet of water, and 218,972 acre feet of water can be furnished by direct diversion of stream flow making a total of 629,677 acre feet available from the projects. Water supply for new lands under the projects is made available to 133,294 acres and 252,920 acres can be served with a supplemental supply. There are 662 miles of canals, and 78.5 miles of laterals. Rights of way acquired total 33,224 acres. The Board has contracts for sale of water with 2051 separate water users.

The projects under the different watersheds are as follows:

	No. of Projects	No. of Reservoirs	Acres		Miles of Canals	Right of Way Acres
			Storage	Diversion		
Columbia Basin	9	4	60,789	68,272	132.62	3,136.63
Upper Missouri Basin	13	7	91,209	43,700	135.92	5,424.75
Lower Missouri Basin	12	11	137,884	16,000	195.56	12,722.89
Yellowstone Basin	10	4	106,335	83,160	112.51	8,552.95
Various Small Projects	129	109	14,488	2,840	85.37	3,387.40
Totals	173	135	410,705	218,972	661.98	33,224.62

The total cost of these projects has been \$16,820,584.26 of which amount the Board received in cash grants \$3,433,898.07 and material and labor grants \$3,326,751.57. These grants were principally from agencies of the federal government. The state through the "conservation revolving fund" provided \$5,756,434.62 of the construction cost and \$4,303,500.00 was received through the sale of water conservation revenue bonds. \$182,500.00 in bonds were issued to finance domestic water supply systems while \$4,121,000.00 were issued and sold to the federal government to finance irrigation projects. As a further aid toward the success of this program, in July 1951, the state through a general fund appropriation purchased \$3,926,835.02 of outstanding water conservation bonds from the federal government for \$1,534,865.92. All future income from the projects represented by these bonds issues is now deposited in the state general fund to return the appropriations that have been made to this program by the state. Through this transaction the state protected its investment in these projects as well as secured the future of the projects from any outside interference.

In the following pages of this pamphlet detailed information is given relative to this water development program. This record of accomplishments demonstrates how Montana has helped make its future more secure, and how through our water conservation program we can continue to develop our water resources, and bring to the different areas of our state insured prosperity through irrigation.

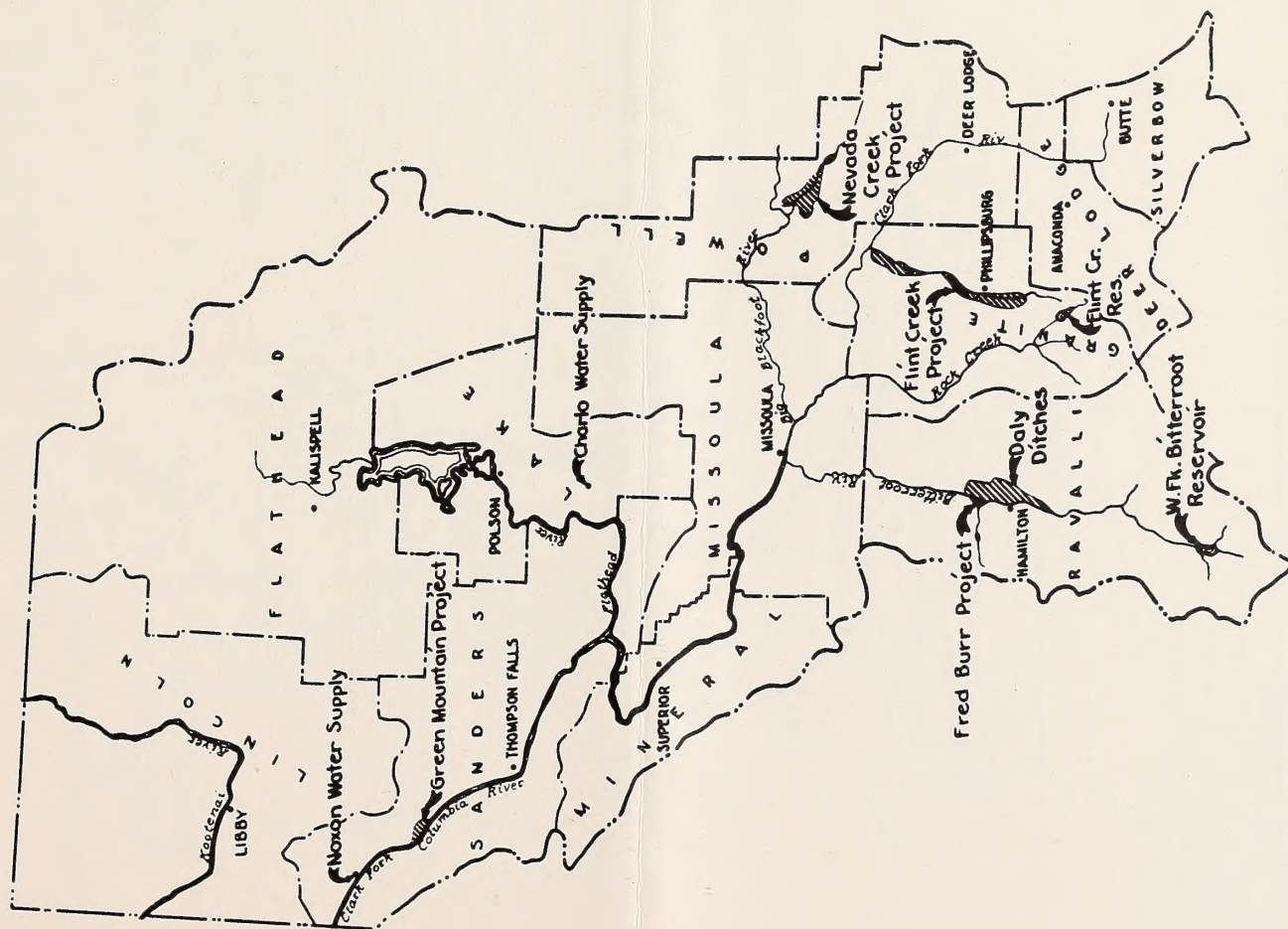


# Projects Constructed and Operated in Columbia River Basin

by the

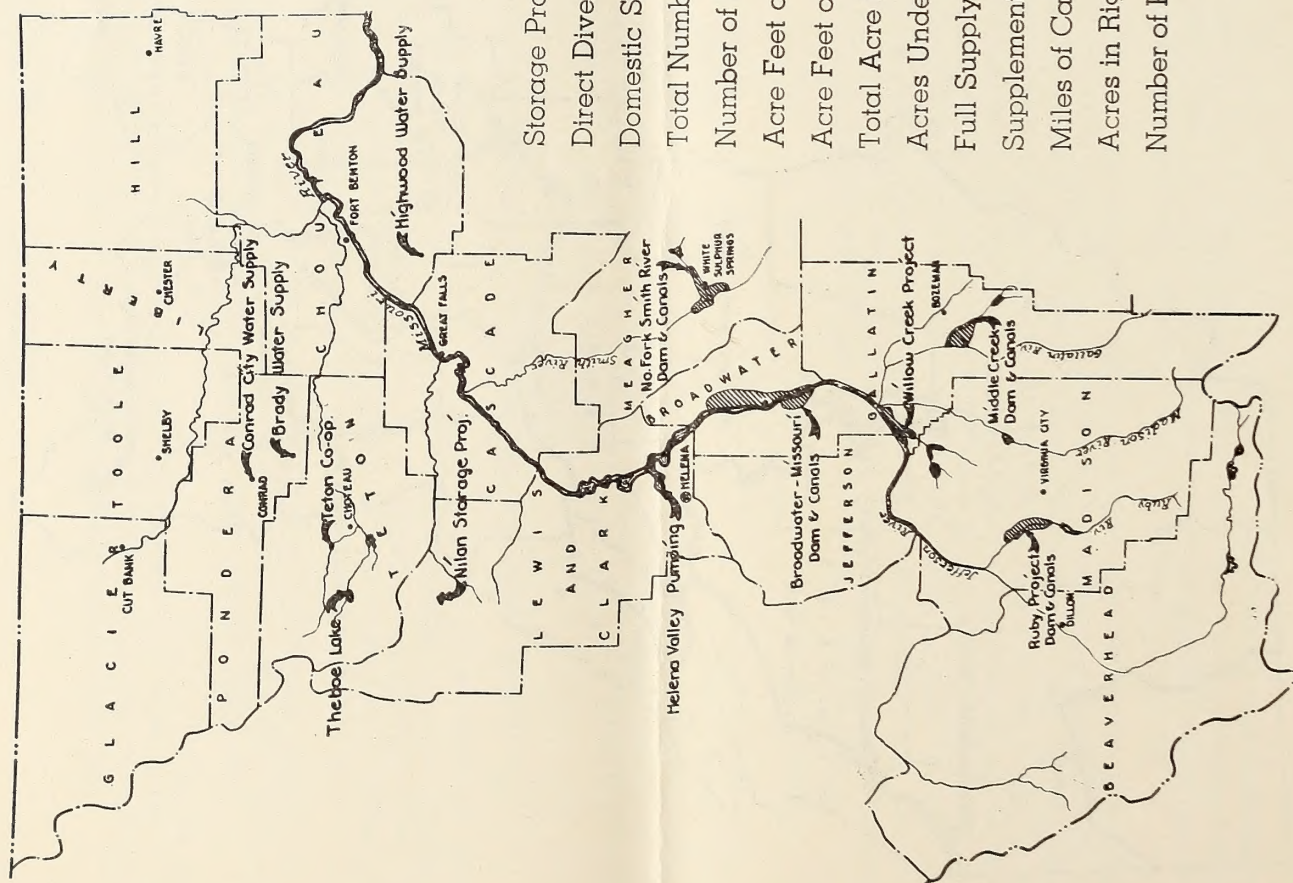
State Water Conservation Board

Storage Projects .....	4
Direct Diversion Projects .....	3
Domestic Supply Projects .....	2
Total Number of Projects .....	9
Number of Storage Reservoirs .....	4
Acre Feet of Storage .....	60,789
Acre Feet of Direct Diversions .....	68,272
Total Acre Feet Available .....	129,061
Acres Under Projects .....	77,520
Full Supply Available—Acres .....	24,600
Supplemental Supply—Acres .....	52,920
Miles of Canal .....	132.62
Acres in Right of Way .....	3,136.63
Number of Present Water Users .....	536



# Projects Constructed and Operated

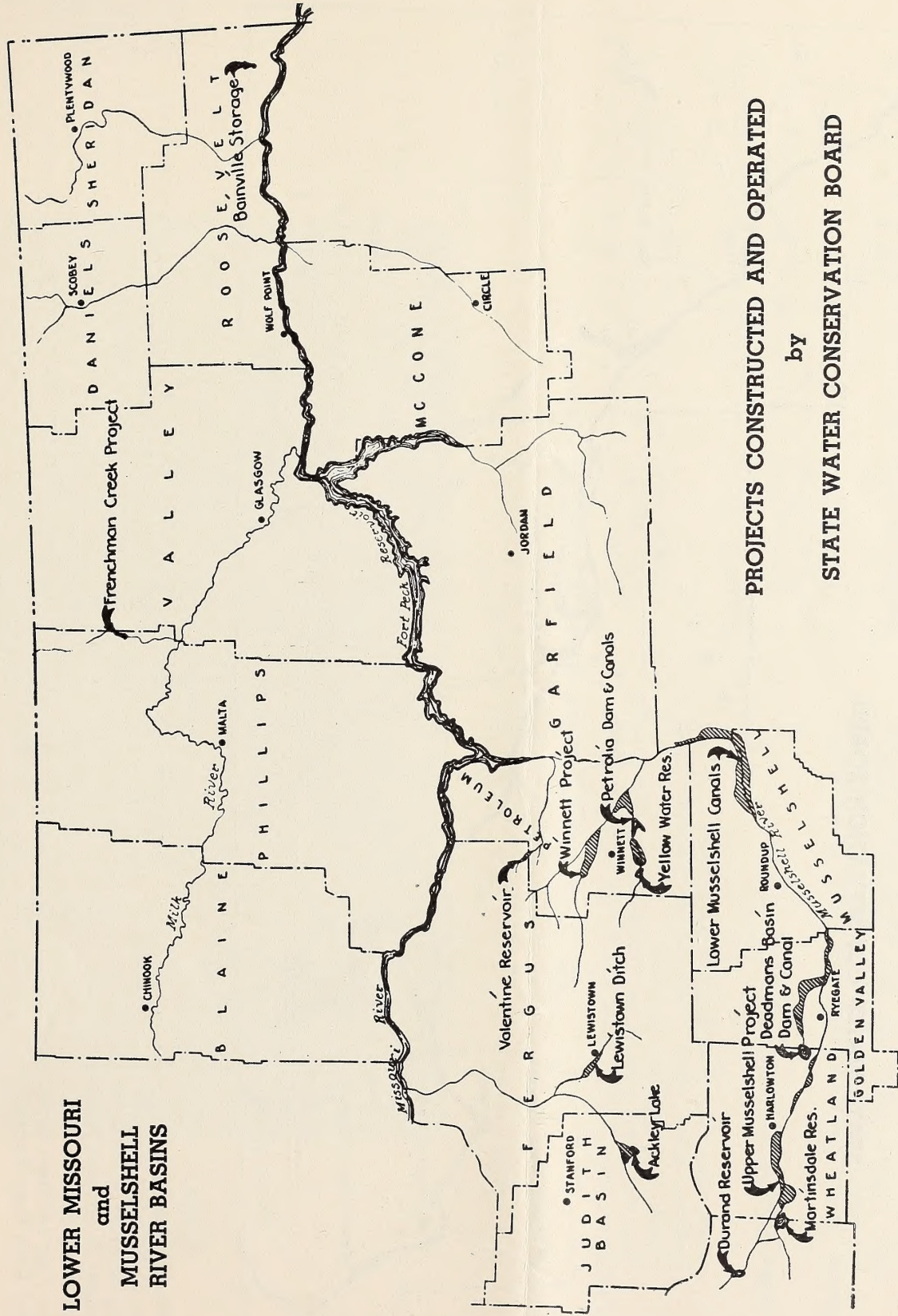
by  
State Water Conservation Board  
in  
Upper Missouri River Basin



Storage Projects .....	7
Direct Diversion Projects .....	3
Domestic Supply Projects .....	3
Total Number of Projects .....	13
Number of Storage Reservoirs .....	7
Acre Feet of Storage .....	91,209
Acre Feet of Direct Diversions .....	48,700
Total Acre Feet Available .....	139,909
Acres Under Projects .....	108,000
Full Supply Available—Acres .....	27,500
Supplemental Supply—Acres .....	80,500
Miles of Canal .....	135.92
Acres in Right of Way .....	5,424.75
Number of Present Water Users .....	647



# LOWER MISSOURI and MUSSELSHELL RIVER BASINS



## PROJECTS CONSTRUCTED AND OPERATED by STATE WATER CONSERVATION BOARD

Storage Projects	10
Direct Diversion Projects	2
Total Number of Projects	12
Number of Storage Reservoirs	11
Acre Feet of Storage	137,884
Acre Feet of Direct Diversions	16,000
Total Acre Feet Available	153,884

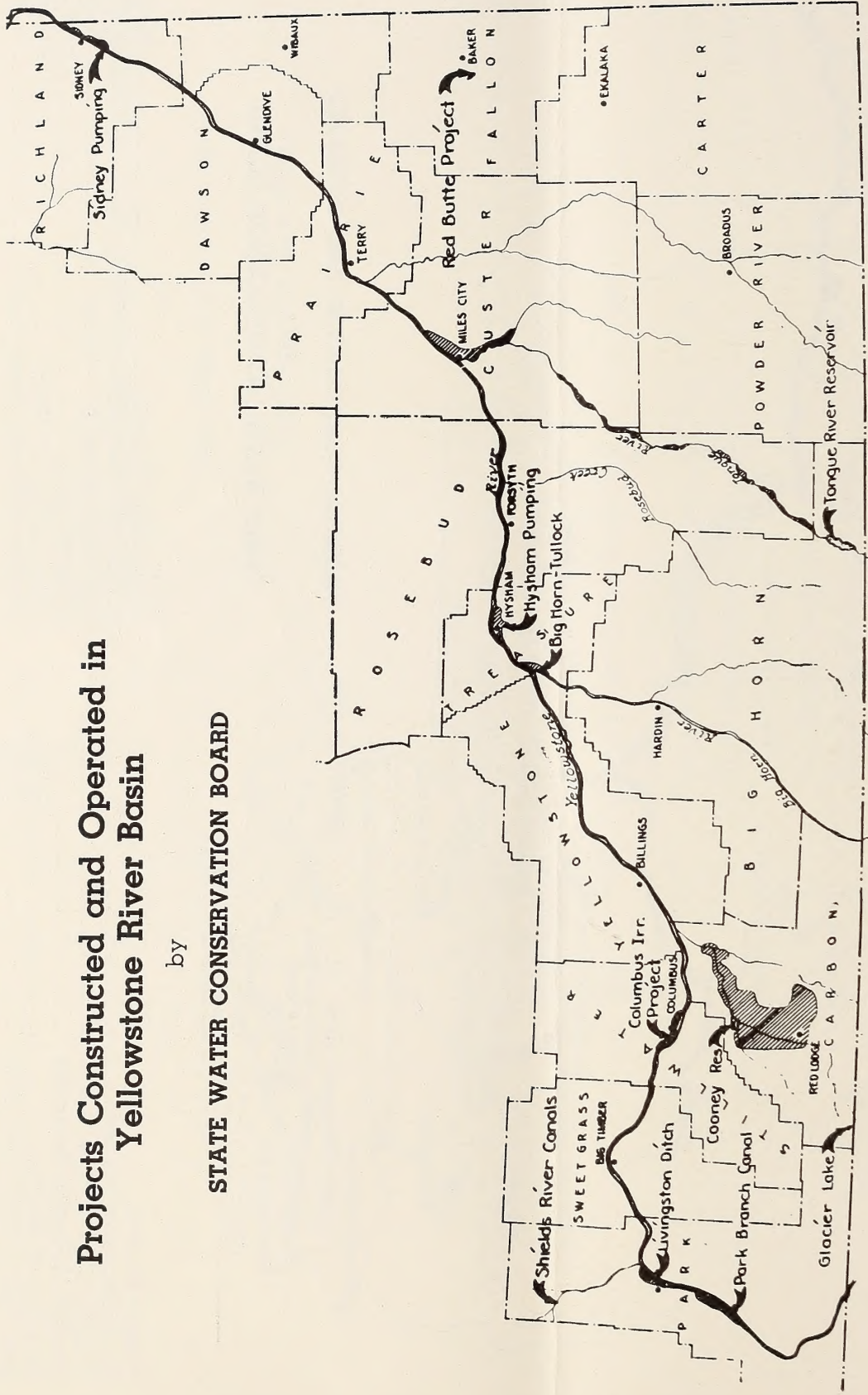
Acres Under Projects	96,800
Full Supply Available—Acres	47,300
Supplemental Supply—Acres	49,500
Miles of Canal	195.56
Acres in Right of Way	12,722.89
Number of Present Water Users	298



# Projects Constructed and Operated in Yellowstone River Basin

by

STATE WATER CONSERVATION BOARD

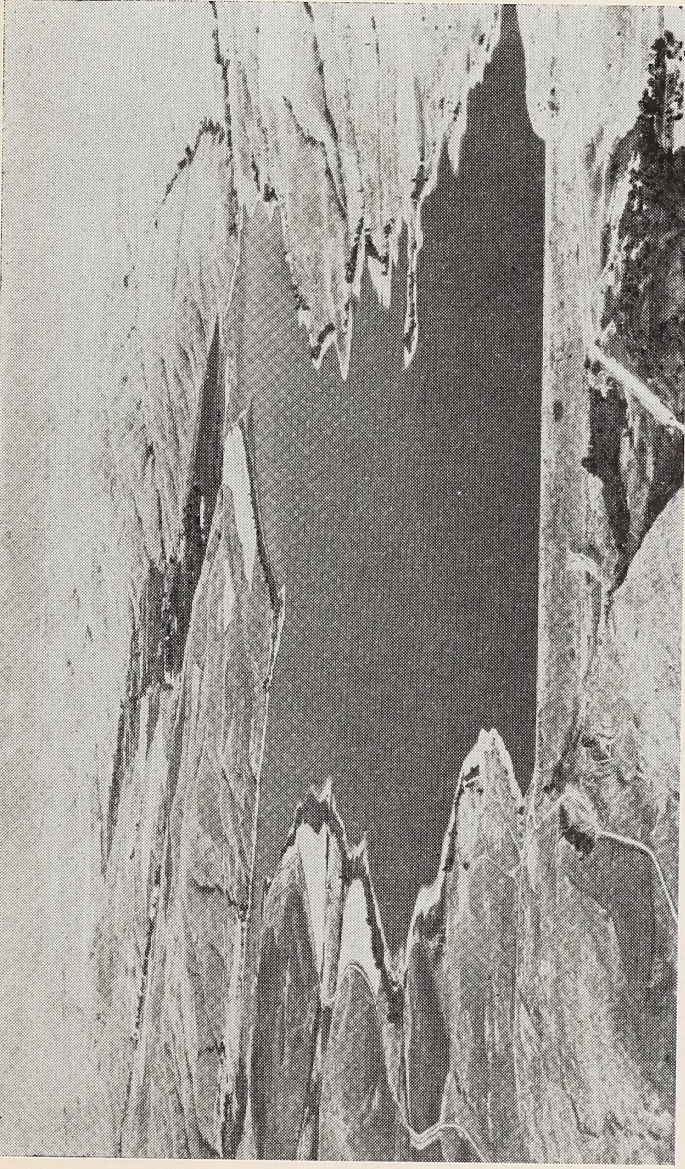


Storage Projects	3
Direct Diversion Projects	7
Total Number of Projects	10
Number of Storage Reservoirs	4
Acres Feet of Storage	106,335
Acres Feet of Direct Diversions	83,160
Total Acres Feet Available	189,495

Acres Under Projects	98,775
Full Supply Available—Acres	28,775
Supplemental Supply—Acres	70,000
Miles of Canal	112.51
Acres in Right of Way	8,552.95
Number of Present Water Users	517



## Cooney Dam



### RED LODGE-ROCK CREEK PROJECT, CARBON COUNTY

**Location:** Cooney Dam: Eight miles west of Boyd. Glacier Lake Dam: Twenty-five miles southwest of Red Lodge at 10,000 feet elevation.  
**Irrigable area:** Rock Creek Valley between Red Lodge and Laurel, and Clark Fork area.

**Water Supply:** Red Lodge and Rock Creeks.

**Dams:** Cooney Dam on Red Lodge Creek. Earth-gravel fill. Length, 2,260 feet; height, 97 feet; top width, 25 feet; bottom width, 550 feet. Contains 1,362,000 cubic yards of material. Tunnel control works with 60-inch gates. Spillway, 200 feet wide with 5,000 second-foot capacity.

Glacier Lake Dam. Rock fill with reinforced concrete slab. Length, 675 feet; height, 52 feet; top width, 10 feet; bottom width, 120 feet. Contains

8,400 cubic yards of material. Tunnel control works with 4-foot by 4-foot sliding sluice gate. Spillway, 90 feet wide with 2,000 second-foot capacity.

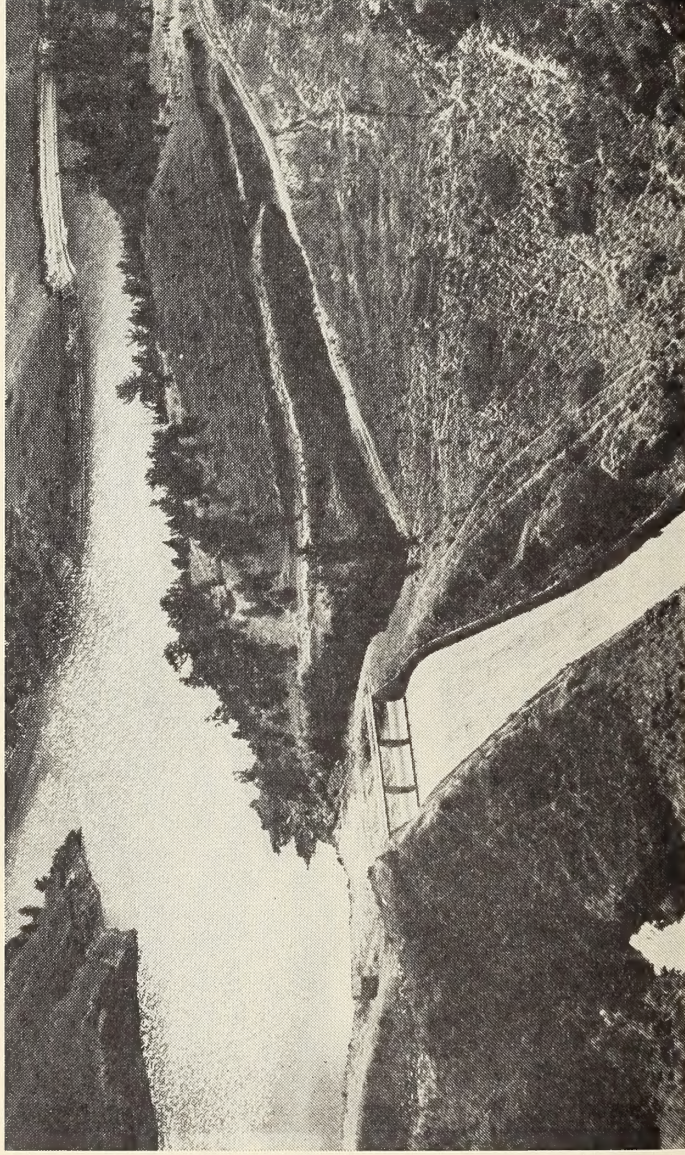
**Reservoir:** Cooney, 27,515 acre-feet of storage capacity. Flooded area, 1,025 acres.  
Glacier Lake. 4,200 acre-feet of storage capacity. Flooded area, 166 acres.  
Total Right of Way, 1900.83.

**Canals:** Finn Ditch, 6 miles long with 50 second-foot capacity. Point of Rocks Canal, 2.3 miles long with 50 second-foot capacity.

**Irrigated Lands:** Project furnishes a supplemental supply for 40,000 acres.



## Willow Creek Dam



### WILLOW CREEK PROJECT, GALLATIN AND MADISON COUNTIES

**Location:** Dam: Four miles east of the town of Harrison.  
Irrigable area: Willow Creek Valley between the towns of Pony and Willow Creek.

trol works with 54-inch gates. Concrete spillway, 120 feet wide with 8,000 second-foot capacity.

**Water Supply:** Willow and Norwegian Creeks.

**Reservoir:** 17,760 acre-feet of storage capacity. Flooded area, 868 acres.

**Dam:** Earth and rock fill. Length, 453 feet; height, 105 feet; top width, 29 feet; bottom width, 515 feet. Contains 176,000 cubic yards of material. Tunnel con-

**Irrigated Lands:** 12,000 acres are furnished a supplemental water supply from this project.



## North Fork Smith River Dam



### NORTH FORK SMITH RIVER PROJECT, MEAGHER COUNTY

**Location:** Dam: Nine miles northeast of White Sulphur Springs. Irrigable area: Smith River Valley in vicinity of White Sulphur Springs.

**Water Supply:** North Fork of Smith River.

**Dam:** Earth, rock and gravel fill. Length, 1,223 feet; height, 86 feet; top width, 30 feet; bottom width, 448 feet. Contains 391,000 cubic yards of material. Conduit control works with 54-inch gates. Spillway, 80 feet wide with 4,000 second-foot capacity.

**Reservoir:** 11,600 acre-feet of storage capacity. Flooded area, 527 acres.

**Canal:** Fourteen miles long. Initial capacity, 50 second-feet.

**Irrigated Lands:** A supplemental water supply is furnished to 9,500 acres while a full supply is provided for 1,500 acres.



## Flint Creek Dam



### FLINT CREEK PROJECT, GRANITE COUNTY

**Location:** Dam: Twenty miles southwest of Philipsburg.  
Irrigable area: Along Flint Creek Valley extending from above Philipsburg to Drummond.

**Water Supply:** East Fork of Rock Creek.

**Dam:** Earth, rock and gravel fill. Length, 1,075 feet; height, 87 feet; top width, 25 feet; bottom width, 450 feet. Contains 404,000 cubic yards of material. Conduit control works with 54-inch gates. Spillway, 61 feet wide with 3,000 second-foot capacity.

**Reservoir:** 15,928 acre-feet of storage capacity. Flooded area, 441.5 acres. Total project right-of-way, 775.87 acres.

**Canals:** Main Diversion Canal, 7.7 miles long, including a 4,050-foot, 54-inch steel pipe syphon; capacity, 200 second-feet. Flint Creek Canal, 5.85 miles long; capacity, 63 second-feet. Marshall Creek Canal, 16.8 miles long; capacity, 57 second-feet. Metcalf Canal, 4.1 miles long; capacity, 17 second-feet. Rebuilt Allendale Canal, 13 miles long; capacity, 125 second-feet; 3.1 miles laterals. Total canal excavation, 591,500 cubic yards.

**Irrigated Lands:** 25,000 acres are furnished a supplemental water supply from this project.



## Ruby River Dam



### RUBY RIVER PROJECT, MADISON COUNTY

**Location:** Dam: Six miles south of Alder.  
Irrigable area: The Ruby Valley from above the dam to Twin Bridges and the Jefferson Valley to Whitehall.

**Water Supply:** Ruby River.

**Dam:** Earth, rock and gravel fill. Length, 846 feet; height, 118 feet; top width, 25 feet; bottom width, 600 feet. Contains 714,394 cubic yards of material. Tunnel control works with 72-inch gates. Spillway, 125 feet wide; capacity, 30,000 second-feet.

**Reservoir:** Storage capacity, 38,850 acre-feet. Flooded area, 1,143 acres.

**Canals:** Main Canal, length, 8 miles; capacity, 205 second feet. West Bench Canal, length, 11.4 miles; capacity, 85 second-feet. Vigilante Canal, length, 20 miles; capacity, 115 second-feet. Total canal excavation, 519,000 cubic yards.

**Irrigated Lands:** This project furnishes a full water supply for 14,000 acres of land and a supplemental supply for 20,000 acres.



## Tongue River Dam



### TONGUE RIVER PROJECT, BIG HORN AND CUSTER COUNTIES

**Location:** Dam: Seventy miles south of Forsyth.  
Irrigable area: The Tongue River Valley from Decker to Miles City.

**Water Supply:** Tongue River.

**Dam:** Earth and gravel fill. Length, 1,824 feet; height, 91 feet; top width, 54.5 feet; bottom width, 620 feet. Contains 1,225,000 cubic yards of material. Tunnel

control works with 6-foot by 12-foot tractor gates. Spillway, 350 feet wide with a capacity of 60,000 second-feet.

**Reservoir:** Storage capacity, 73,950 acre-feet. Flooded area, 4,088 acres. Total right of way, 5,843.72 acres.

**Irrigated Lands:** This project furnishes a supplemental water supply for 30,000 acres.



## Nevada Creek Dam



### NEVADA CREEK PROJECT, POWELL COUNTY

**Location: Dam:** Nine miles south and east of Helmville. Irrigable area: Nevada Creek Valley from Finn to Helmville.

**Water Supply:** Nevada Creek.

**Dam:** Earth, rock and gravel fill. Length, 1,195 feet; height, 83 feet; top width, 25 feet; bottom width, 405 feet. Contains 386,500 cubic yards of material. Conduit control works with 54-inch valves. Spillway, 100 feet wide; capacity, 9,000 second-feet.

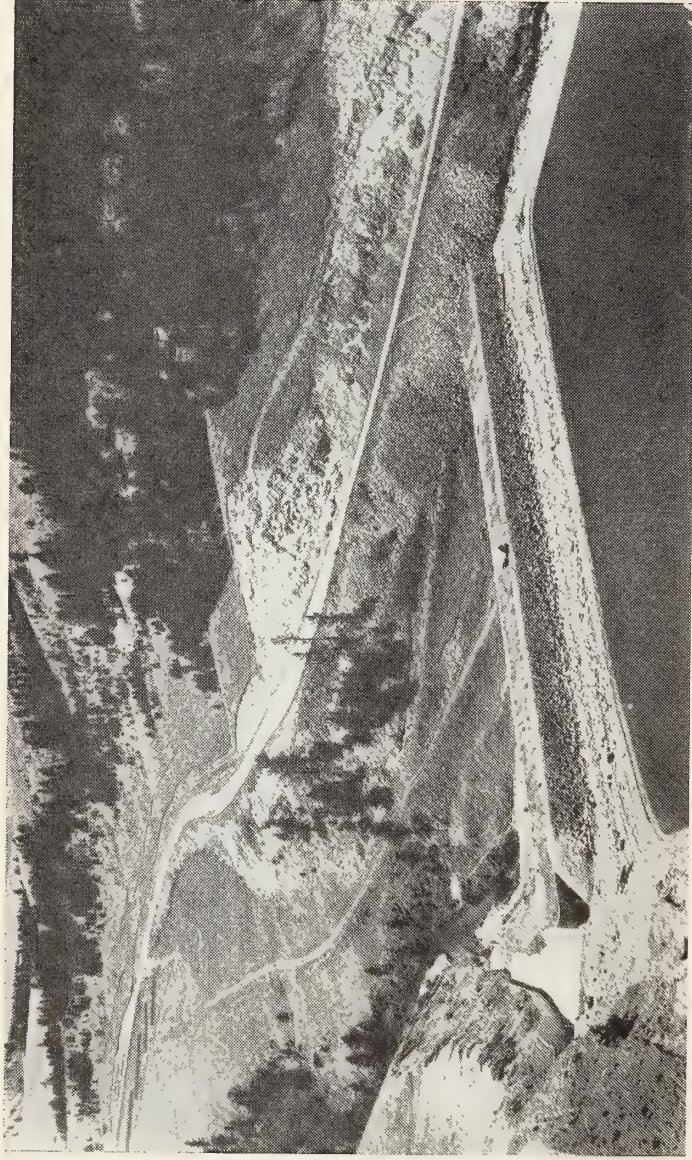
**Reservoir:** Storage capacity, 12,640 acre-feet. Flooded area, 448 acres. Total right of way, 734.94 acres.

**Canals:** Enlargement and extension, 13 miles; capacity, 50 second feet. Canal excavation, 75,000 cubic yards.

**Irrigated Lands:** This project furnishes a full supply to 1,000 acres and a supplemental supply to 10,000 acres of land.



## Durand Dam



### UPPER MUSSELSHELL PROJECT, MEAGHER AND WHEATLAND COUNTIES

**Location:** Durand Dam: One mile west of Delphine.  
Martinsdale Dam: One mile southeast of Martinsdale.

**Irrigable area:** In the Musselshell Valley between Martinsdale, Delphine and Barber.

**Water Supply:** Musselshell River and tributaries.

**Dams:** Durand: Earth, gravel and rock fill. Length, 538 feet; height, 100 feet; top width, 30 feet; bottom width, 540 feet. Conduit control works with 48-inch valves. Spillway, 64 feet wide with 6,000 second-foot capacity. Contains 241,600 cubic yards of material.

Martinsdale: Two dams; total length, 2,638 feet; height, 98 feet; top width, 23 feet; bottom width, 458 feet. Conduit outlet works with 54-inch gates.

Spillway, 10 feet wide with capacity of 600 second-feet. Contains 716,500 cubic yards of material.

**Reservoirs:** Durand: Storage capacity, 7,009 acre-feet. Flooded area, 272 acres.

Martinsdale: Storage capacity, 23,110 acre-feet. Flooded area, 985 acres. Total right of way, 2,266 acres.

**Canals:** Checkerboard: 2.9 miles long; capacity, 51 second-feet. South Fork: 2.5 miles long; capacity, 400 second-feet; North Fork: 11.7 miles long; capacity, 104 second-feet. Outlet Canal: 2.6 miles long; capacity, 330 second-feet. Two Dot Canal: 32 miles long; capacity, 123 second-feet. Total canal excavation, 720,559 cubic yards.

**Irrigated Lands:** Full irrigation supply for 6,000 acres and supplemental supply for 29,000 acres.



**Headgate,  
Columbus  
Canal**



### **COLUMBUS PROJECT, STILLWATER COUNTY**

**Location:** Diversion Headgate: Eleven miles west of Columbus.

Irrigable area: North side of Yellowstone Valley from diversion headgate to Columbus.

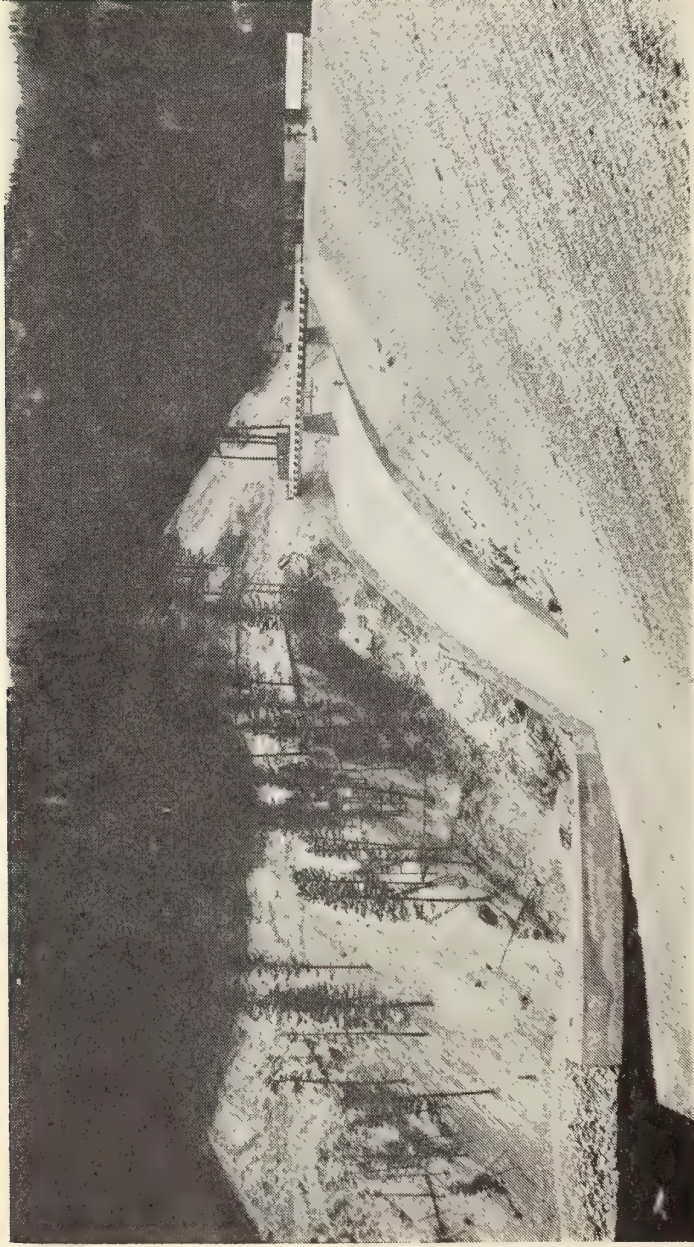
**Water Supply:** Yellowstone River.

**Canal:** Rebuilding and extending an existing canal, total length, 15.4 miles; capacity, 102 second-feet. Total excavation, 80,300 cubic yards. Construction includes 1,676 feet of metal flume 5 feet in diameter.

**Irrigated Lands:** This project furnishes a full supply of water to 3,100 acres of land.



# West Fork of Bitterroot Dam



## WEST FORK OF BITTERROOT PROJECT, RAVALLI COUNTY

**Location:** Dam: Forty miles south of Darby.

Irrigable area: The Bitterroot Valley from the dam to Missoula.

**Water Supply:** West Fork of the Bitterroot River.

**Dams:** Earth, gravel and rock fill. Length, 800 feet; height, 143 feet; top width, 20 feet; bottom width, 755 feet. Contains 853,000 cubic yards of material. Tun-

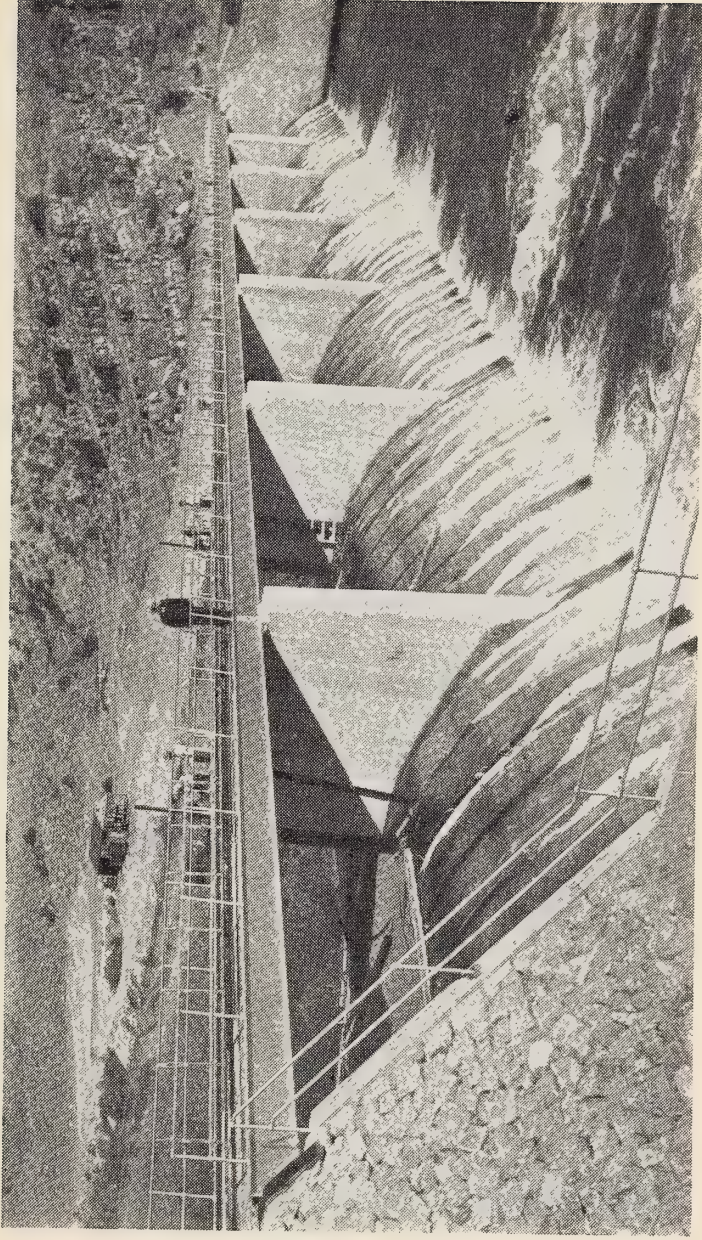
nel control works with 5-foot by 8-foot tractor gates. Spillway, 160 feet wide with capacity of 26,000 second-feet.

**Reservoir:** Storage capacity, 31,706 acre-feet. Flooded area, 655 acres.

**Irrigated Lands:** Project furnishes a supplemental supply for 20,000 acres of land.



## Broadwater- Missouri Dam



### BROADWATER-MISSOURI PROJECT, BROADWATER COUNTY

**Location:** Diversion Dam: Five miles southeast of Tosten.  
Irrigable area: Missouri River Valley from Tosten to Confederate Gulch.

**Water Supply:** Missouri River.

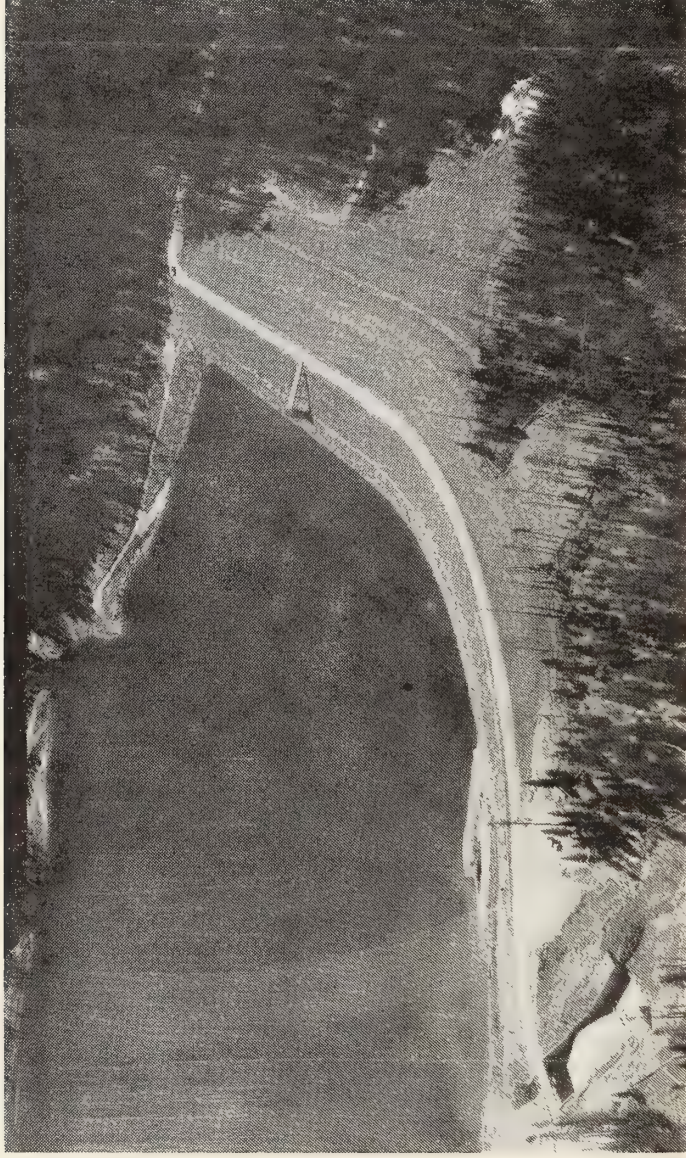
**Dams:** Diversion Dam: Overflow gravity type mass concrete. Length, 705 feet; overflow section, 325 feet; height, 40 feet. Contains 14,047 cubic yards of concrete.

**Canals:** Main Canal, 1.5 miles long; capacity, 342 second-feet. West Canal, 12.4 miles long, including inverted siphon 1,445 feet long; 54-inch diameter; capacity, 90 second-feet. East Canal, 34.3 miles long; initial capacity, 262 second-feet; includes river crossing 667.6 feet long of 84-inch steel pipe. Total canal excavation, 909,854 cubic yards. Total right of way, 504 acres.

**Irrigated Lands:** This project furnishes a full supply to 5,000 acres and a supplemental supply to 10,000 acres of land.



## Middle Creek Dam



### MIDDLE CREEK PROJECT, GALLATIN COUNTY

**Location:** Dam: Fifteen miles southeast of Bozeman.  
Irrigable area: The Gallatin Valley along Middle Creek and Cottonwood Creek.

**Water Supply:** Middle or Hyalite Creek.

**Dam:** Earth, gravel and rock fill. Length, 1,310 feet; height, 110 feet; top width, 25 feet; bottom width, 575 feet. Conduit control works with 54-inch valves. Spillway, 40 feet wide with capacity of 3,000 second-feet. Contains 569,500 cubic yards of material.

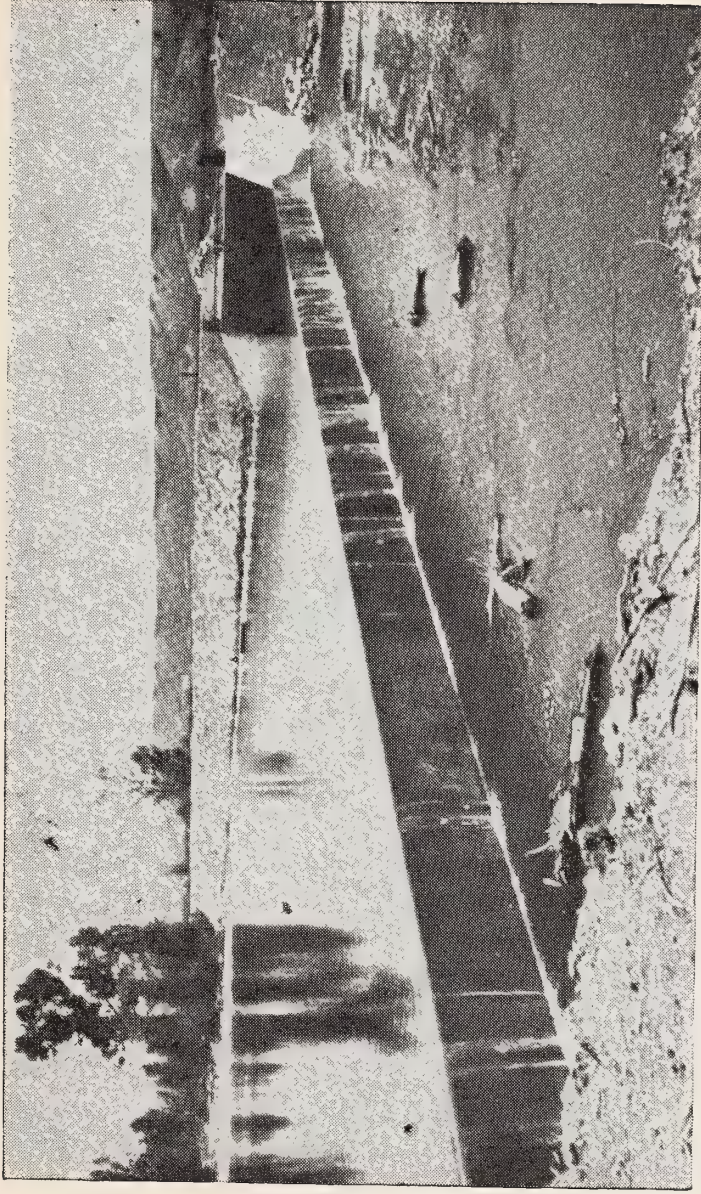
**Reservoir:** Storage capacity, 8,027 acre-feet. Flooded area, 248 acres. Total right of way, 299 acres.

**Canals:** Diversion canal from Middle Creek to Cottonwood Creek, 4.11 miles long with capacity of 77 second-feet; includes 1,054 feet of 76-inch diameter metal flume. Canal excavation, 144,450 cubic yards.

**Irrigated Lands:** Project will furnish a supplemental supply to 16,000 acres in Gallatin Valley.



## Deadman's Basin Diversion



### DEADMAN'S BASIN PROJECT, GOLDEN VALLEY, WHEATLAND AND MUSSELSHELL COUNTIES

**Location:** Diversion Dam: Eight miles east of Harlowton. Storage off-stream reservoir, two miles north of Barber.

Irrigable area: Along Musselshell River between Barber and Melstone.

**Water Supply:** Musselshell River.

**Diversion Dam:** Concrete overflow weir, 200 feet long, 6 feet high with 1,300 feet of dykes.

**Storage Dam:** 1,085 feet long, 25 feet high, 25 feet top width and 147 feet thick at the base. Tunnel control works with 5-foot by 5-foot sluice gates. Contains 82,200 cubic yards of material.

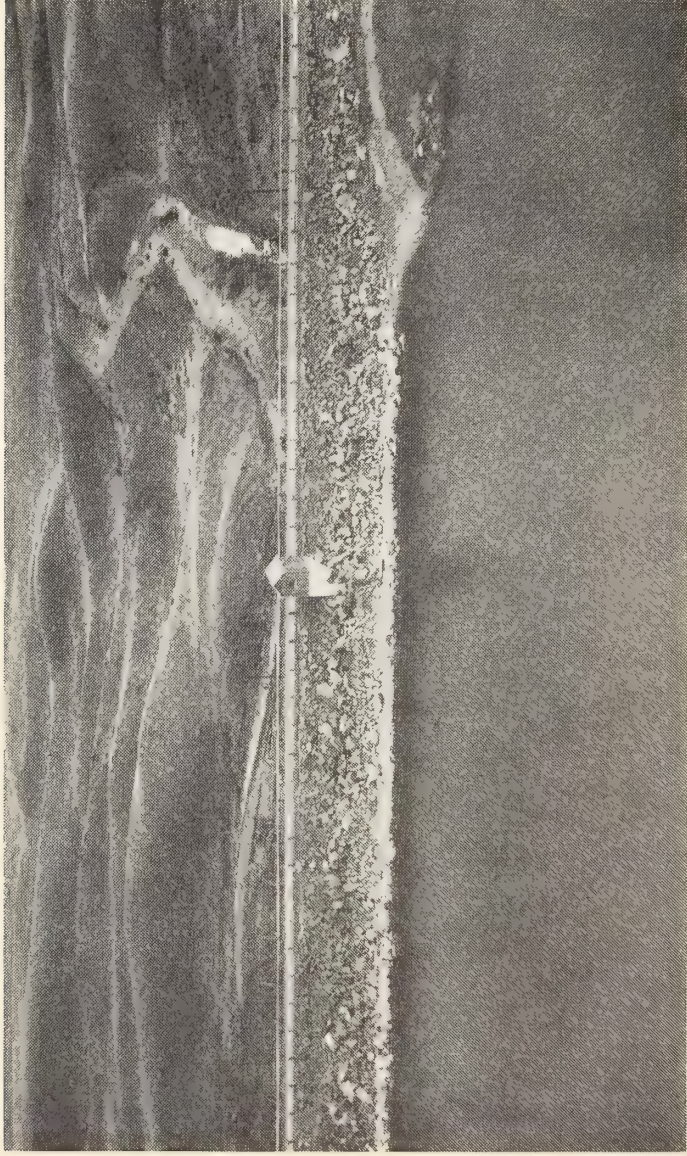
**Reservoir:** Storage capacity, 52,400 acre feet. Flooded area, 1,895 acres. Total right of way, 3,957 acres.

**Canals:** Main diversion canal: 60,300 feet long; capacity, 700 second-feet. Concrete headgate with two 14-foot by 6-foot radial gates, double concrete box culverts 7-foot by 6.5-foot, 274-foot long under railroad and highway, 11 wasteways and other structures, concrete. Excavation, 2,200,291 cubic yards of material. Outlet canals: 53,800 feet long, including Barber lateral; capacity, 344 second-feet.

**Irrigated Lands:** The project furnishes a full supply for 4,000 acres and a supplemental supply for 11,500 acres exclusive of lands to be served by the Lower Musselshell Canal Project.



## Nilan Dam



### NILAN STORAGE PROJECT, LEWIS AND CLARK COUNTY

**Location:** Dam: Seven miles west of Augusta. Irrigable area: Vicinity of Augusta.

**Water Supply:** Smith and Ford Creeks diverted to off-stream storage.

**Dams:** North Dam: Length 1,530 feet; height 44 feet; top width 27 feet; bottom width 225 feet, with dike 1,300 feet long, 10 feet high. East Dam: Length 1,010 feet; height 34 feet; top width 27 feet; bottom width 187 feet. Concrete conduits with 48-inch sluice gates. Contains 125,000 cubic yards of fill.

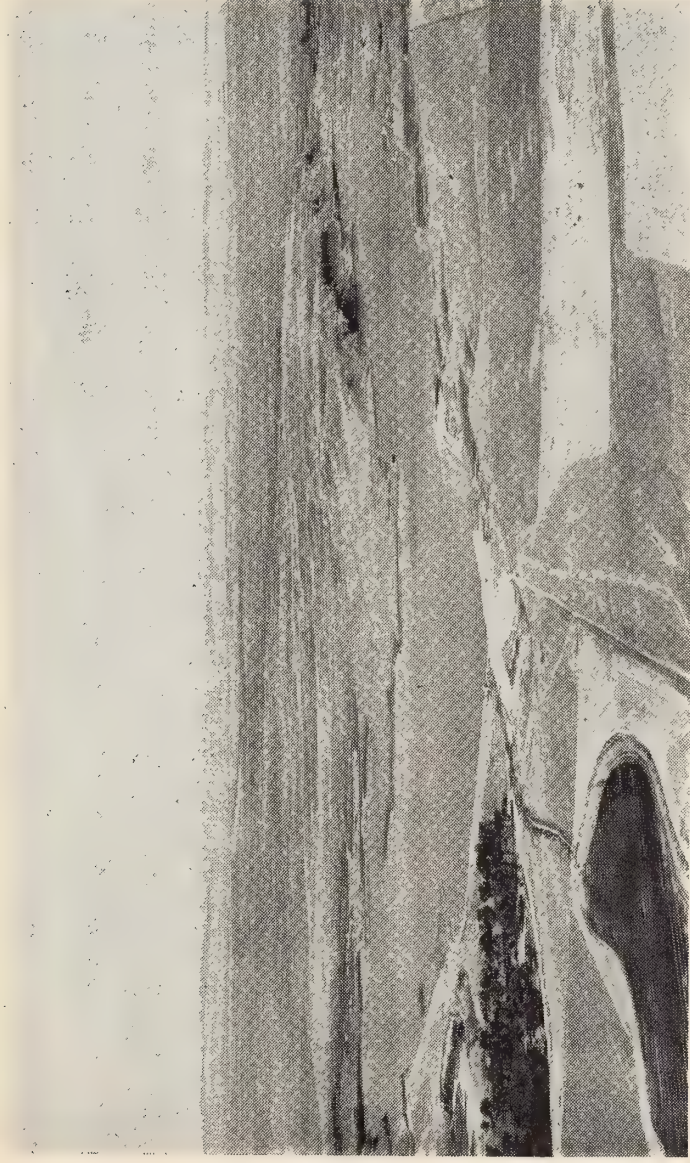
**Reservoir:** Storage capacity, 10,000 acre-feet. Flooded area, 691 acres. Total right of way, 774 acres.

**Canals:** Intake from Smith Creek and Ford Creek; capacity 300 second-feet; length 5½ miles. Two outlet canals, 75 second-feet capacity; length 5.2 miles. Canal excavation 194,000 cubic yards.

**Irrigated Lands:** Project will furnish full water supply for 1,000 acres and supplemental supply for 9,000 acres.



## Petrolia Dam



### PETROLIA STORAGE PROJECT, PETROLEUM COUNTY

**Location:** Storage Dam: 12 miles southeast of Winnett.

**Water Supply:** Flatwillow and Elk Creeks.

**Dam:** Earth fill. Length 966 feet; height 55 feet; top width 20½ feet; bottom width 330 feet. Dyke, 2,200 feet long, with maximum height of 12.5 feet. Contains 300,000 cubic yards of material. Spillway, 100 feet wide and 125 feet long with capacity of 7,000 second-feet. Concrete outlet conduit 5 feet inside diameter with 60-inch sluice gates.

**Reservoir:** Storage capacity, 9,192 acre feet; flooded area, 440 acres. Total right of way, 741.5 acres.

**Canal:** Main canal, 5.3 miles long, initial capacity 100 second-feet. Laterals, 7 miles long. Canal excavation, 117,000 cubic yards.

**Irrigated Lands:** A full water supply will be available to 5,300 acres of new land.



## Frenchman Dam



### FRENCHMAN CREEK STORAGE PROJECT, PHILLIPS COUNTY

**Location:** Dam: Seventeen miles north of Saco. Irrigable area: Lower Frenchman Creek and Milk River Valleys.

**Water Supply:** Frenchman Creek.

**Dam:** Earth fill, length 770 feet; height 40 feet; top width 20 feet; bottom width 260 feet. Dyke 2,062 feet long; maximum height 5 feet. Spillway, concrete; 125 feet wide; 180 feet long; capacity 12,000 second-feet. Additional capacity provided by overflow section

in dike. Horseshoe-shaped outlet conduit, 5 foot inside diameter with two 60-inch sluice gates.

**Reservoir:** Storage capacity 7,010 acre-feet. Flooded area: 1,253 acres.

**Irrigated Lands:** The project will furnish a full water supply for 1,000 acres and a supplemental supply for 6,000 acres.



**LIVINGSTON DITCH PROJECT, PARK COUNTY**

**Location:** Diversion Dam: West bank of Yellowstone River, 5 miles south of Livingston.  
Irrigable area: In the immediate vicinity of the city of Livingston.

**Canal:** 10.2 miles long with initial capacity of 80 second-feet with 1,287 lineal feet of timber lining and 887 lineal feet of corrugated metal pipe. Canal excavation, 25,510 cubic yards.

**Water Supply:** Yellowstone River.

**Diversion Dam:** Concrete weir, 139.6 feet long, 4 feet 6 inches high, with concrete headgate equipped with two 5-foot by 3½-foot slide gates.

**Irrigated Lands:** 3,080 acres of land receive a full water supply from this project.

**PARK BRANCH CANAL PROJECT, PARK COUNTY**

**Location:** Diversion Dam: Two miles above Emigrant and 25 miles south of Livingston.  
Irrigable area: Along Yellowstone River in the vicinity of the towns of Emigrant, Pray and Brisbin.

long and 5 feet high with headgate equipped with four slide gates each 5 feet by 3½ feet.

**Canal:** The canal is 20.9 miles long with initial carrying capacity of 266 second-feet. Total material excavation, 378,184 cubic yards. Right of way, 174.5 acres.

**Water Supply:** Yellowstone River.

**Diversion Works:** A combination concrete weir 87 feet

**Irrigated Lands:** This project furnishes a full water supply to 6,207 acres of land.



## SIDNEY PUMPING PROJECT, RICHLAND COUNTY

**Location:** Pumping Plants: No. 1, seven miles south of Sidney; No. 2, three miles southeast of Sidney; No. 3, three miles east of Sidney.  
 Irrigable area: On the south side of the Yellowstone Valley in the vicinity of Sidney.

**Water Supply:** Yellowstone River.

Canals and Pumps:			
Unit	No. of Pumps	No. of Horse-power	Lift
1	3	460	70.5 ft.
2	1	50	32 ft.
3	2	80	27 ft.
			Length of Canals
			13 mi.
			2.5 mi.
			2.75 mi.
			Pump Capacities
			44 sec.-ft.
			10 sec.-ft.
			22 sec.-ft.

**Power Line:** Twelve miles of 13,500-volt power line from Sidney to pump stations.

**Irrigated Lands:** This project furnishes a full water supply for 5,000 acres of land.

## ACKLEY LAKE PROJECT, JUDITH BASIN COUNTY

**Location:** Dam: Five miles southwest of Hobson.  
 Irrigable area: Judith River Valley and bench lands in the vicinity of Hobson.

**Water Supply:** Judith River.

**Dam:** Earth and gravel fill. Length, 3,514 feet; height, 41 feet; top width ,20 feet; bottom width, 212 feet. Contains 108,000 cubic yards of material. Conduit control works with 48-inch gates. Spillway, 30 feet wide; capacity, 200 second-feet.

**Reservoir:** Storage capacity, 5,635 acre-feet. Flooded area, 247 acres. Total right of way, 643 acres.

**Canals:** Diversion canal, 6.7 miles long; capacity, 100 second-feet. Outlet canal, 4.5 miles long; capacity, 62 second-feet. Distribution canals, 22 miles long.

**Irrigated Lands:** This project furnishes a supplemental supply for 1,500 acres and a full water supply for 4,500 acres.



## HYSHAM PUMPING PROJECT, TREASURE COUNTY

### **Location:** Pumping Plant: Myers.

Irrigable area: Yellowstone Valley, south and west of Hysam.

### **Water Supply:** Yellowstone River.

### **Pumping Plants:** Main Plant: Two 19,500 g.p.m. with

350 h.p. motors. Static head, 57.02 feet.

Relift Plant: Three 6,750 g.p.m. with 100 h.p. motors. Static head, 45.11 feet.

**Canals:** Main Canal: 19.3 miles long; capacity, 133 second-feet. Relift Canal, 8.3 miles long; capacity, 47 second-feet. All canal structures are concrete and metal pipe. Canal excavation, 327,400 cubic yards.

**Irrigated Lands:** Project will furnish water supply for 7,600 acres of land.

## LOWER MUSSELSHELL CANALS, MUSSELSHELL COUNTY

**Location:** Diversion Dam: At the town of Musselshell. Irrigable area: Musselshell Valley from Musselshell to Petroleum County line.

**Water Supply:** Musselshell River and storage water from Deadman's Basin Project.

**Diversion Dam:** Concrete overflow weir, 182 feet long, 6 feet high, with three 5-foot by 5-foot slide gates.

**Canals:** Main Canal, 2 miles long with a capacity of 220 second-feet. South Canal, 34.2 miles long with a capacity of 135 second-feet. North Canal, 20.6 miles long with a capacity of 100 second-feet. Total excavation, 787,000 cubic yards.

**Irrigated Lands:** Project will furnish full water supply for 13,000 acres of land and a supplemental supply for 1,500 acres.



## DALY DITCHES PROJECT, RAVALLI COUNTY

**Location:** East side of Bitterroot Valley near Hamilton.

**Water Supply:** Bitterroot River, Skalkaho and Gird Creeks.

**Canals:** Seven separate canals totaling 61 miles in length with capacities ranging from 20 to 150 second-foot and approximately 50 miles of smaller laterals.

**Irrigated Lands:** The project furnishes a full water supply for 17,500 acres in the Bitterroot Valley.

## HELENA VALLEY PUMPING PROJECT LEWIS AND CLARK COUNTY

**Location:** 10 miles northeast of Helena.

**Water Supply:** Lake Helena.

**Pumping Plants:** North Unit: 3 pumps, 78-foot lift, and 6 pumps, 114-foot lift powered by 3 600-horsepower motors. Total capacity 108 second-feet. South Unit: 2 pumps 160-foot lift powered by 2 940-horsepower motors. Total capacity 72 second-feet.

**Canals:** North Unit: 5.25 miles of 40 second-foot and 6.75 miles of 75 second-foot capacity with 3,697 feet of 36-inch pipeline. South Unit: 9.4 miles of 75 second-foot capacity with 890 feet of 48-inch pipe line.

**Irrigated Lands:** Project can serve 5,000 acres in the Helena Valley.

## NEVADA CREEK NORTH CANAL POWELL COUNTY

**Location:** Diversion Dam: 4 miles southeast of Helmville. Irrigable area: Along Nevada Creek north of Helmville and extending northwest to Blackfoot River.

**Water Supply:** Nevada Creek and Nevada Creek Reservoir.

**Diversion Dam:** Concrete structure 30 feet long, 2.5 feet high.

**Canal:** 13½ miles long with initial capacity of 49 second-feet. All canal structures are concrete. Canal excavation, 157,400 cubic yards.

## FRED BURR CREEK STORAGE PROJECT RAVALLI COUNTY

**Location:** Ten miles southwest of Victor. Irrigable area: Vicinity of Victor.

**Water Supply:** Fred Burr Creek.

**Dam:** Earth and rock fill; length 275 feet; height 50 feet. Top width 20 feet; bottom width 254 feet. Spillway 20 feet wide with capacity of 1,000 second-feet. Outlet conduit, diameter 4 feet with 48-inch sluice gate.

**Spillway:** 20 feet wide, capacity 1,400 second-feet.

**Reservoir:** Storage capacity 515 acre-feet. Flooded area 32 acres.

**Irrigated Lands:** Project will furnish a supplemental water supply for 920 acres.



## **BIG HORN TULLOCK, TREASURE COUNTY**

This project is located near the town of Big Horn and is designed to irrigate 1,900 acres in the Yellowstone Valley. Construction consists of a concrete, brush and rock diversion dam 210 feet long and 8 feet high, across

the Big Horn River. The main canal, 6.4 miles long, was enlarged to carry 50 second-feet and all structures were replaced. A pumping unit together with the necessary distribution canal was installed.

## **WINNETT IRRIGATION, PETROLEUM COUNTY**

The storage dam for this project is located about 15 miles northeast of Winnett, and the irrigated land lies between the dam and Winnett. The water supply is by diversion from Ford Creek, and the reservoir has a storage capacity of 19,250 acre-feet which will furnish a full

water supply for 5,000 acres of land. Construction consisted of repairs to the dam and the building of a new diversion canal 4 miles long, 40 feet wide on the bottom with the necessary intake and other structures. Capacity of the canal is 1,200 second-feet.

## **GREEN MOUNTAIN, SANDERS COUNTY**

The project consists of a diversion dam from Swamp Creek and 19 miles of canals to irrigate 900 acres of

land. The project is located on the east side of the Clarks Fork Valley in the vicinity of the town of Trout Creek.

## **RED BUTTE, FALLON COUNTY**

Dam and reservoir on Red Butte Creek, six miles southwest of Baker, with a storage capacity of 470

acre-feet. Will furnish full water supply to irrigate 200 acres.

## **YELLOW WATER, PETROLEUM COUNTY**

This storage dam with a capacity of 4,400 acre-feet is located on Yellow Water Creek, 10 miles southwest of Winnett. The dam is an earth fill, 2,400 feet long, height 56 feet, and the flooded area is 435 acres. The

outlet is 42-inch galvanized pipe with a slide gate. The dam contains 123,700 cubic yards of material. A full water supply is being provided to 1,000 acres immediately below the dam.

## **TETON COOP. STORAGE, TETON COUNTY**

In cooperation with local water users a 4,000 acre-foot storage dam and reservoir was constructed on the Teton

River for a supplemental irrigation supply to lands north and east of Choteau.



### **THEBO LAKE, TETON COUNTY**

A dam was constructed to store 830 acre-feet in this lake. A water supply for irrigation is furnished

to 500 acres northwest of Choteau.

### **VALENTINE STORAGE, FERGUS COUNTY**

A dam and reservoir storing 2,000 acre-feet on Blood Creek, 70 miles northeast of Lewistown. Can furnish,

through pumping, a full irrigation supply to 500 acres of land.

### **LEWISTOWN DITCH, FERGUS COUNTY**

Rehabilitation of diversion dam on Big Spring Creek at Lewistown and canal 15 miles long to irrigate 1,500

acres between Lewistown and Hanover.

### **BAINVILLE STORAGE, ROOSEVELT COUNTY**

An offstream dam and reservoir was constructed to store 3,500 acre-feet. The intake canal 2 miles long from Shot-gun Creek, and an outlet canal was also con-

structed. Two thousand acres can be irrigated in the vicinity of Bainville.



# DOMESTIC WATER SUPPLY SYSTEMS

## CITY OF CONRAD, PONDERA COUNTY

Eleven and one-half miles of 8-inch and 10-inch iron pipe extending from Lake Francis Reservoir to city's

distribution reservoir; capacity, 508,000 gallons per day; total excavation, 31,150 cubic yards.

## TOWN OF HIGHWOOD, CHOTEAU COUNTY

Nine thousand linear feet of 6-inch, 4-inch and 3-inch transite pipe from well on Highwood Creek to storage tank and distribution system; 5,000 linear feet of service trench; 30,000-gallon reinforced concrete underground

tank; 6-inch drilled well with 50 g.p.m. pump; capacity, 72,000 gallons per day. Total excavation, 6,900 cubic yards.

## TOWN OF NOXON, SANDERS COUNTY

Three and one-half miles of 8-inch wood pipe from Pilgrim Creek to Noxon together with domestic con-

nections, fire hydrants, reserve tank, etc.

## TOWN OF CHARLO, LAKE COUNTY

Nine thousand, two hundred linear feet of 6-inch and 4-inch wood pipe from well and elevated tank to distribution system; 30,000-gallon wood tank on 97-foot

wood tower; 6-inch well, 480 feet in depth, with 100 g.p.m. pump; capacity, 144,000 gallons per day. Total excavation, 5,100 cubic yards.

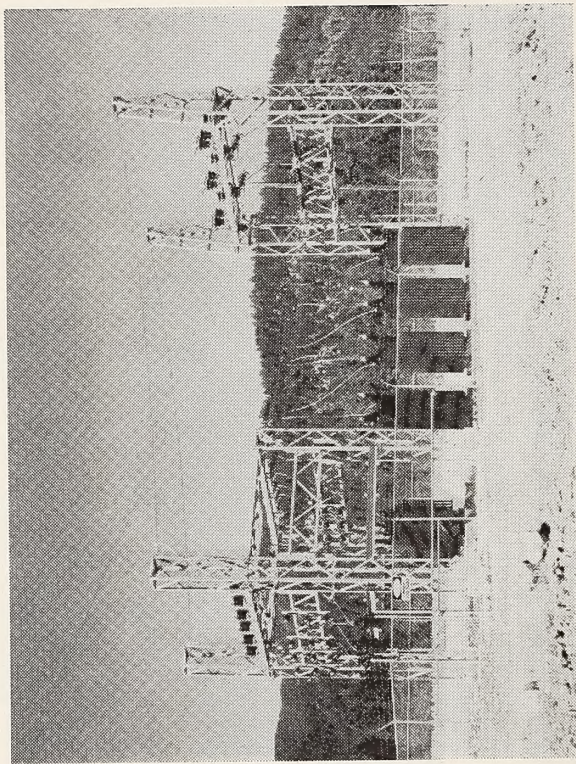
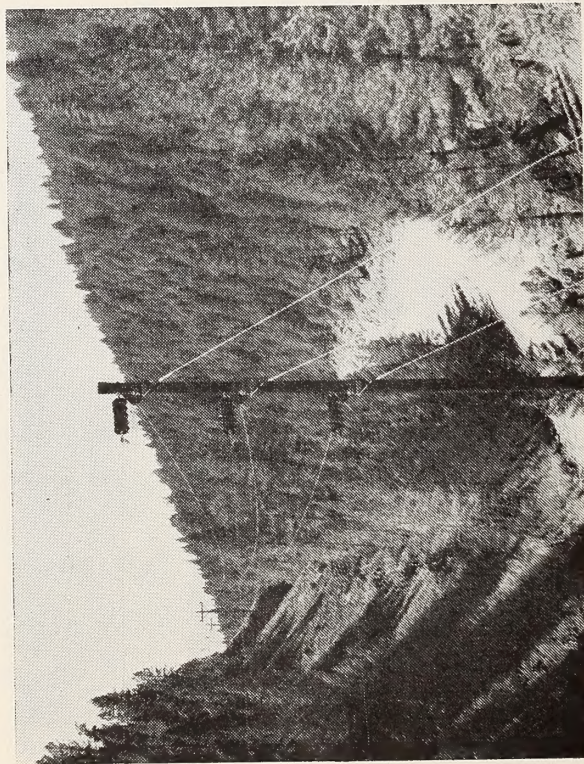
## TOWN OF BRADY, PONDERA COUNTY

Seventeen thousand linear feet of 6-inch and 4-inch transite pipe from reservoir and elevated tank through distribution system; 40,000-gallon steel tank on 100-foot steel tower; 15-inch concrete supply line, 1,444 feet

long; pumphouse with two 100 g.p.m. pumps; seventeen million gallon capacity reservoir; 6,000 cubic yards of compacted fill in dam.



# Rural Electrification Projects Engineered by the State Water Conservation Board



Cooperative	Miles of Line	Members Served
Ravalli County Electric .....	40.1	30
Sun River Electric .....	95.84	273
Lower Yellowstone Electric .....	735.15	962
Yellowstone Valley Electric .....	457.44	1,230
Vigilante Electric .....	554.94	831
Missoula Electric .....	274.55	387
Flathead Electric .....	278.21	582
Fergus County Electric .....	416.15	553
Park County Electric .....	339.40	675
Mid-Yellowstone Electric .....	161.10	138
Beartooth Electric .....	609.28	982

Cooperative	Miles of Line	Members Served
Big Horn Electric .....	363.23	668
Sheridan County Electric .....	1,529.01	1,708
Northern Electric .....	877.67	889
Valley County Electric .....	435.10	450
McCone County Electric .....	387.93	541
Golden West Electric .....	726.82	693
Hill County Electric .....	1,530.45	936
Tongue River Electric .....	295.92	246
Totals.....	10,108.29	12,774